

Claims 1-5 are currently pending. Claims 3-5 remain withdrawn from consideration by the Examiner. Accordingly, Applicants respectfully request reconsideration of the outstanding rejections and allowance of claims 1 and 2 in the present application. Such action is respectfully requested and is now believed to be appropriate and proper.

On pages 2-4 of the Official Action, claims 1 and 2 were rejected under 35 U.S.C. § 103(a) as being unpatentable over ISAO (Japanese Patent Publication 57-196851) in view of BATES (U.S. Patent No. 5,306,974). The Examiner takes the position that ISAO shows a direct current commutator motor adapted to be driven by a direct current power source obtained by rectifying an alternating current power source (Figures 1, 2a and 2b), including first and second brushes (8,9) adapted to be electrically connected with plus and minus poles of the direct current power source, the first brush being made of material having a high resistivity while the second brush is made of a material having a low resistivity (abstract), and a commutator (7) having a rotor wire winding (601), the first and second brushes being slidably engaged with the commutator to supply the electric current to the rotor wire winding.

The Examiner recognizes that ISAO does not show a capacitor connected parallel to an output of the direct current power source, but takes the position that BATES shows a capacitor (Figure 9; 60 and 62) connected parallel to an output of a direct current power

source for the purpose of reducing electromagnetic noise, and that since ISAO and BATES are from the same field of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the other. The Examiner takes the position that it would have been obvious to connect a capacitor parallel to an output of the direct current power source as taught by BATES. In regard to claim 2, the Examiner takes the position that ISAO shows the first brush being a carbon brush (so called because it contains more carbon than metal) and the second brush being a metal-mixed graphite brush (so called because it contains more metal than carbon).

Applicants respectfully traverse the rejection of claims 1 and 2 under 35 U.S.C. § 103(a) as being unpatentable over ISAO in view of BATES.

Claim 1 includes, inter alia, "A direct current commutator motor adapted to be driven by a direct current power source obtained by rectifying an alternating current power source, said motor comprising: a first brush adapted to be electrically connected with a plus pole of the direct current power source, said first brush being made of a material having a high resistivity; a second brush adapted to be electrically connected with a minus pole of the direct current power source, said second brush being made of a material having a low resistivity; . . . and a capacitor connected parallel to an output of the direct current power source."

In regard to claim 1, ISAO does not disclose a first brush made of a material having a *high* resistivity and a second brush made of a material having a *low* resistivity. Further, in regard to claim 2, ISAO does not disclose a first brush being a *carbon brush* and a second brush being a *metal-mixed graphite brush*. Instead, ISAO discloses *both brushes as including mixtures of good electroconductive metal and graphite*, with different mixing ratios for equalizing wearing amounts. Since the first brush includes good electroconductive metal, it is not made of a material having a *high* resistivity. Contrary to the Examiner's contention, while the brushes may have different resistivities, due to their different mixing ratios, the first brush of ISAO cannot be fairly characterized as having *high* resistivity. Unlike the present invention, spark discharge is *not* suppressed by such a positive pole brush, which includes good electroconductive metal. In regard to claim 2, such a brush, which includes good electroconductive metal, does *not* constitute a "carbon brush".

Further, as acknowledged by the Examiner, ISAO does not include a capacitor connected parallel to an output of a direct current power source obtained by rectifying an alternating current power source. BATES teaches the use of capacitors 60, 62 for the purpose of *suppressing interference with signals of vehicle radios* (note column 1, lines 15-21; column 2, lines 37-42; column 5, line 66 through column 6, line 12). However, there would be *no apparent need for a radio interference suppressing capacitor*, as taught

P19613.A07

by BATES, in the system of ISAO in which radio signal interference is of no concern.

Therefore, there would be no reason to modify the system of ISAO based on the teachings of BATES. Further, only the use of *impermissible hindsight* based upon review of the disclosure of the present application could possibly lead one to combine the teachings of ISAO and BATES as set forth in the rejection.

Applicants recognized the problem of increased brush wear due to increased spark discharge in systems with brushes formed of different resistivity materials, particularly ones which use a direct current power source obtained by rectifying an alternating current power source. In a system which uses a direct current power source obtained by rectifying an alternating current power source, the power source is switched on and off at a cycle that is twice the frequency of the alternating current. Therefore, spark discharge is more likely to occur than in a system which uses pure direct current. Applicants solved this problem by providing a capacitor in such a system in order to minimize brush wear.

Accordingly, Applicants submit that the rejection of claims 1 and 2 under 35 U.S.C. § 103(a) is improper for all of the above reasons. Applicants respectfully request reconsideration and withdrawal of the rejection, and an early indication of allowance of these claims.

SUMMARY AND CONCLUSION

In view of the foregoing, it is submitted that none of the references of record, considered alone or in any proper combination thereof, anticipate or render obvious Applicant's invention as recited in claims 1 and 2. The applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Reconsideration of the outstanding Official Action, and allowance of the present application and all of the claims therein are respectfully requested and now believed to be appropriate.

Should there be any questions or comments, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,  
KONISHI et al.

*With T. Lynch Reg. No.*  
Bruce H. Bernstein 41,568  
Reg. No. 29,027

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GREENBLUM & BERNSTEIN, P.L.C.  
1941 Roland Clarke Place  
Reston, VA 20191  
(703) 716-1191